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Pulpwood Production in the North-Central Region by County, 1980

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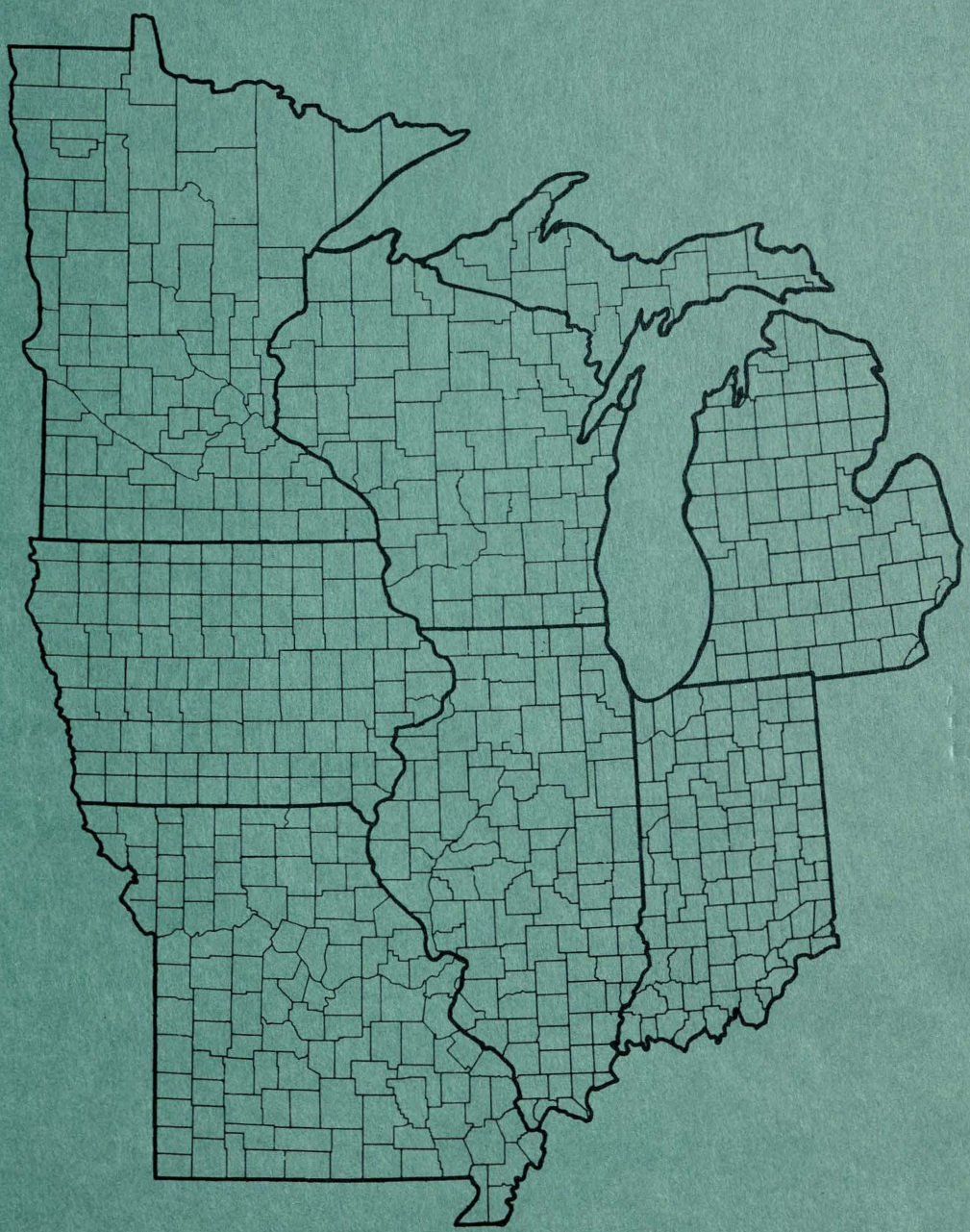

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HIGHLIGHTS
Lake States

Pulpwood production climbed to 5.66 million cords in 1980. Birch output exceeded 300,000 cords for the first time. Loggers also cut record amounts of red pine, white pine, hard maple, balsam poplar, ash, and basswood. Jack pine was the only major loser. Eight percent of total production was whole-tree chips; Michigan continued to be the leading producer.

Total production rose 12 percent in Wisconsin, remained steady in Michigan, and declined 9 percent in Minnesota. Minnesota set another modern-day low in pine output.

Canadian softwood residue was imported in record quantities for the 8th consecutive year; Wisconsin was the principal customer.

Central States

Central States pulpwood production was 430,000 cords, only 90 percent of the 1979 volume. Soft hardwood output was the lowest recorded in this annual series. Softwood roundwood production reached another peak. Exports from the Central States broke the previous record.

Pulpwood receipts, the lowest since 1960, were off 25 percent at 221,000 cords. Several mills had weak demand for their building materials products. One mill closed permanently.

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PULPWOOD PRODUCTION IN THE NORTH CENTRAL REGION BY COUNTY, 1980

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This is the 22nd annual report of the pulpwood harvest in Lake States counties and the 21st annual report of the Central States harvest. Pulpwood constitutes more than half the timber products harvested annually in the Lake States (Michigan, Minnesota, and Wisconsin) and is an important product in the Central States (Illinois, Indiana, Iowa, and Missouri).

Current detailed pulpwood production[1] information is necessary for intelligent planning and decisionmaking in wood procurement, forest resource management, and forest industry development. Also, researchers need current pulpwood information for planning projects.

Since 1979, logs, bolts and wood residue used in manufacturing particleboard and waferboard are included in this annual series. Wood used at composition board plants is identical or nearly identical to wood used at pulpmills.

Because composition board plants primarily use aspen and wood residue, their inclusion does not distort roundwood use trends for other species nor preclude comparing survey results with 1978 and previous years.

Pulpmills, particleboard plants, and waferboard plants using North Central States timber in 1980 reported their pulpwood receipts[2] by species groups and counties of origin. This report presents the results of the survey, analyzes the data where appropriate, compares results with 1979 or earlier years, and discusses trends in pulpwood production and use.

[1]*Pulpwood production, determined from mill receipts, is the annual volume of pulpwood cut in a specific county or region, plus the annual wood residue volume produced by sawmills, veneer mills, etc., in a specific State or region that was used for pulp and composition board manufacturing.*

[2]*Pulpwood receipts are the volume of wood received by mills in a specific State or region, regardless of the geographic source.*

The Lake States and Central States are discussed separately because the timber types in each area are different and less information can be released about the Central States (more detailed data on pulpwood production and receipts in the Central States would reveal the operations of individual mills).

Pulpwood production in Minnesota is completely and accurately shown. However, to prevent disclosure of confidential information about softwood pulpwood use by individual companies, the total quantity of softwood pulpwood imports and exports between Minnesota and Canada is not reported. Thus, some Minnesota softwood shipped to Canada is shown as remaining and used in Minnesota, and receipts of Canadian softwood in Minnesota are understated.

LAKE STATES
Production

Pulpwood production rose 2 percent from 1979 to 5.66 million cords in 1980 (table 1). Roundwood (including chips from roundwood) provided 9 out of 10 cords; the remainder was residue from local wood-using plants.[3]

Principal species cut were aspen (2,278,000 cords), jack pine (489,000 cords) and balsam fir (322,000 cords). Other notable species, each providing 200,000 to 300,000 cords, were red pine, spruce, hard maple, white birch, and soft maple.

Important harvest increases included hard maple (65,000 cords), spruce (49,000 cords), and white birch (40,000 cords). Spruce recovered from production near its 30-year low in 1979. Birch harvesting surpassed

[3]*Residue is the byproduct from sawmills, veneer mills, cooperage mills, and other wood-using plants that is used for pulping. Residue includes slabs, edgings, veneer cores, sawdust, wood flour, and chips manufactured from slabs, edgings, and veneer cores.*

Table 1.--Production and imports of pulpwood, Lake States, 1980

(In standard cords, unpeeled)

Species and destination	Production by States[1]				Imports			
	Michigan	Minnesota	Wisconsin	Regional total	Other U.S.[2]	Canada	Total imports	Total receipts
ROUNDWOOD								
Cedar								
Michigan	7,302	0	90	7,392	0	0	0	7,392
Total	7,302	0	90	7,392	0	0	0	7,392
Balsam fir								
Michigan	48,896	0	1,594	50,490	0	0	0	50,490
Minnesota	0	79,720	0	79,720	0	0	0	79,720
Wisconsin	44,372	2,743	99,887	147,002	0	285	285	147,287
Exported[3]	15,996	28,514	0	44,510	0	0	0	0
Total	109,264	110,977	101,481	321,722	0	285	285	277,497
Hemlock								
Michigan	49,466	0	2,899	52,365	0	0	0	52,365
Wisconsin	8,737	0	31,273	40,010	0	0	0	40,010
Total	58,203	0	34,172	92,375	0	0	0	92,375
Jack pine								
Michigan	110,054	0	833	110,887	0	0	0	110,887
Minnesota	0	85,773	0	85,773	0	244	244	86,017
Wisconsin	45,493	25,015	208,420	278,928	33,222[4]	0	33,222[4]	312,150[5]
Exported[3]	2,703	10,021	1,120	13,844	0	0	0	0
Total	158,250	120,809	210,373	489,432	33,222	244	33,466	509,054
Red pine								
Michigan	76,372	0	765	77,137	0	0	0	77,137
Minnesota	0	13,091	0	13,091	0	0	0	13,091
Wisconsin	15,505	9,874	157,589	182,968	61	0	61	183,029
Total	91,877	22,965	158,354	273,196	61	0	61	273,257
White pine								
Michigan	13,216	0	496	13,712	0	0	0	13,712
Minnesota	0	6,512	0	6,512	0	0	0	6,512
Wisconsin	4,150	109	18,165	22,424	0	0	0	22,424
Total	17,366	6,621	18,661	42,648	0	0	0	42,648
Spruce								
Michigan	27,245	0	205	27,450	0	0	0	27,450
Minnesota	0	122,235	0	122,235	0	5,843	5,843	128,078
Wisconsin	17,467	38,181	32,291	87,939	0	5,870	5,870	93,809
Exported[3]	12,952	9,454	0	22,406	0	0	0	0
Total	57,664	169,870	32,496	260,030	0	11,713	11,713	249,337
Tamarack								
Michigan	4,672	0	8	4,680	0	0	0	4,680
Minnesota	0	13,036	0	13,036	0	770	770	13,806
Wisconsin	1,086	29,494	3,434	34,014	0	0	0	34,014
Total	5,758	42,530	3,442	51,730	0	770	770	52,500
Ash								
Michigan	11,863	0	3	11,866	0	0	0	11,866
Wisconsin	5,394	351	40,090	45,835	0	0	0	45,835
Exported[3]	0	1	92	93	0	0	0	0
Total	17,257	352	40,185	57,794	0	0	0	57,701
Aspen								
Michigan	525,347	0	0	525,347	0	0	0	525,347
Minnesota	0	594,943	17,863	612,806	0	198	198	613,004
Wisconsin	179,621	83,997	854,856	1,118,474	0	0	0	1,118,474
Exported[3]	0	20,448	429	20,877	0	0	0	0
Total	704,968	699,388	873,148	2,277,504	0	198	198	2,256,825
Balsam poplar								
Michigan	18,646	0	0	18,646	0	0	0	18,646
Minnesota	0	46,491	0	46,491	0	0	0	46,491
Total	18,646	46,491	0	65,137	0	0	0	65,137
Basswood								
Michigan	16,462	0	0	16,462	0	0	0	16,462
Minnesota	0	55	0	55	0	0	0	55
Wisconsin	847	8	19,931	20,786	0	0	0	20,786
Exported[3]	0	1	173	174	0	0	0	0
Total	17,309	64	20,104	37,477	0	0	0	37,303
Beech								
Michigan	17,811	0	20	17,831	0	0	0	17,831
Wisconsin	1,075	0	37	1,112	0	0	0	1,112
Total	18,886	0	57	18,943	0	0	0	18,943
White birch								
Michigan	62,910	0	268	63,178	0	0	0	63,178
Minnesota	0	165	0	165	0	0	0	165
Wisconsin	16,052	15,080	161,651	192,783	0	0	0	192,783
Exported[3]	0	0	141	141	0	0	0	0
Total	78,962	15,245	162,060	256,267	0	0	0	256,126
Yellow birch								
Michigan	10,188	0	0	10,188	0	0	0	10,188
Wisconsin	14,341	0	23,412	37,753	0	0	0	37,753
Total	24,529	0	23,412	47,941	0	0	0	47,941
Cottonwood								
Exported[3]	0	0	30	30	0	0	0	0
Total	0	0	30	30	0	0	0	0
Elm								
Michigan	17,352	0	19	17,371	0	0	0	17,371
Wisconsin	22,306	37	99,653	121,996	0	0	0	121,996
Exported[3]	0	213	496	709	0	0	0	0
Total	39,658	250	100,168	140,076	0	0	0	139,367

(Table 1 continued on next page)

(Table 1 continued)

Species and destination	Production by States[1] Michigan	Minnesota	Wisconsin	Regional total	Imports Other U.S.[2]	Canada	Total imports	Total receipts
ROUNDWOOD (cont)								
Hickory								
Wisconsin	0	0	636	636	0	0	0	636
Total	0	0	636	636	0	0	0	636
Hard maple								
Michigan	73,999	0	281	74,280	0	0	0	74,280
Wisconsin	49,954	873	152,372	203,199	0	0	0	203,199
Exported[3]	0	3	167	170	0	0	0	0
Total	123,953	876	152,820	277,649	0	0	0	277,479
Soft maple								
Michigan	124,174	0	208	124,382	0	0	0	124,382
Wisconsin	23,203	172	55,734	79,109	0	0	0	79,109
Exported[3]	0	0	474	474	0	0	0	0
Total	147,377	172	56,416	203,965	0	0	0	203,491
Red oak								
Michigan	93,305	0	13	93,318	0	0	0	93,318
Wisconsin	2,477	0	59,471	61,948	0	0	0	61,948
Exported[3]	0	2	1,255	1,257	0	0	0	0
Total	95,782	2	60,739	156,523	0	0	0	155,266
White oak								
Michigan	6,287	0	0	6,287	0	0	0	6,287
Wisconsin	462	0	19,307	19,769	0	0	0	19,769
Exported[3]	0	4	474	478	0	0	0	0
Total	6,749	4	19,781	26,534	0	0	0	26,056
Other hardwoods								
Michigan	12,744	0	39	12,783	0	0	0	12,783
Wisconsin	2,881	0	4,458	7,339	0	0	0	7,339
Exported[3]	0	0	42	42	0	0	0	0
Total	15,625	0	4,539	20,164	0	0	0	20,122
Total roundwood								
Michigan	1,328,311	0	7,741	1,336,052	0	0	0	1,336,052
Minnesota	0	962,021	17,863	979,884	0	7,055	7,055	986,939
Wisconsin	455,423	205,934	2,042,667	2,704,024	33,283	6,155	39,438	2,743,462
Exported[3]	31,651	68,661	4,893	105,205	0	0	0	0
Total	1,815,385	1,236,616	2,073,164	5,125,165	33,283	13,210	46,493	5,066,453
RESIDUE, SOFTWOOD								
Michigan	8,215	0	0	8,215	0	2,957	2,957	11,172
Minnesota	0	29,311	0	29,311	19,991	2,054	22,045	51,356
Wisconsin	6,912	2,103	38,200	47,215	135,026	85,534	220,560	267,775
Exported[3]	116	2,503	1,279	3,898	0	0	0	0
Total	15,243	33,917	39,479	88,639	155,017	90,545	245,562	330,303
RESIDUE, HARDWOOD								
Michigan	105,883	0	27,270	133,153	12,498	0	12,498	145,651
Minnesota	0	52,459	0	52,459	0	5,829	5,829	58,288
Wisconsin	27,760	8,033	216,649	252,442	1,986	0	1,986	254,428
Exported[3]	4,381	2,266	5,386	12,033	0	0	00	0
Total	138,024	62,758	249,305	450,087	14,484	5,829	20,313	458,367
ALL WOOD MATERIAL								
Michigan	1,442,409	0	35,011	1,477,420	12,498	2,957	15,455	1,492,875
Minnesota	0	1,043,791	17,863	1,061,654	19,991	14,938	34,929	1,096,583
Wisconsin	490,095	216,070	2,297,516	3,003,681	170,295	91,689	261,984	3,265,665
Exported[3]	36,148	73,430	11,558	121,136	0	0	0	0
Total	1,968,652	1,333,291	2,361,948	5,663,891	202,784	109,584	312,368	5,855,123

[1]/Vertical columns of figures under box heading "Production by States" present the amount of pulpwood cut in each State.
[2]/Mostly western States.
[3]/Pulpwood shipped to mills outside of region.
[4]/Ponderosa pine.
[5]/Includes ponderosa pine from other U.S.

300,000 cords for the first time. Other record harvests included red pine, white pine, hard maple, balsam poplar, ash, and basswood. Balsam fir production was the highest since 1960.

Jack pine output fell 110,000 cords, the only major species to decline. Rising production in other softwoods more than offset the jack pine decline.

Lake States loggers produced 447,000 cords of whole-tree chips,[4] 17 percent more than in 1979, and 8 percent of the pulpwood from all sources in 1980. Whole-tree chips constituted 1 out of every 6 cords produced in Michigan. Production of whole-tree chips by species group and State was:

State	Softwoods	Aspen	Other hardwoods
	(Thousand cords)		
Michigan	12.8	189.3	125.2
Minnesota	—	98.3	8.8
Wisconsin	1.1	8.6	3.4

[4]*Pulpwood produced from chipping entire trees (all portions of trees above ground, except the stumps).*

Michigan.—Michigan supplied 1.97 million cords of pulpwood, down slightly from 1979. Jack pine production plunged 40 percent, but gains were recorded in all other softwood groups, except cedar. Delta, Marquette, Iron, and Menominee counties each produced more than 100,000 cords.

Minnesota.—Minnesota production fell 125,000 cords to 1.33 million. Ninety-two percent of the hardwood harvest was aspen, although aspen demand dropped sharply. The pine cut declined beyond the

previous modern-day low set in 1979. During recent years the trend has been down in the jack pine harvest and up in red pine. Top-producing counties were St. Louis, Koochiching, and Itasca.

Wisconsin.—Demand for Wisconsin pulpwood climbed to 2.36 million cords, led by record high demand for aspen, pine, balsam fir, and birch. Wisconsin wood-using mills supplied nearly one-quarter million cords of hardwood residue to pulpmills. Marinette, Oneida, Forest, and Price were the leading pulpwood-producing counties.

The distribution of the harvest is shown in two ways: first, the amount of pulpwood cut relative to the growing stock volume in major pulpwood species (fig. 1); and second, the amount of pulpwood cut relative to commercial forest area (fig. 2). Cutting pressure increased more in Northeastern Wisconsin than elsewhere. Other areas with heavy cutting were Central Wisconsin and all parts of Michigan except the Southern Lower Peninsula.

Receipts

Thirty-eight pulpmills, three particleboard plants, and three waferboard plants received 5.86 million cords of pulpwood in 1980. Thirty-nine out of 43 operating mills used aspen and 21 used hardwood residue, 2 more than in 1979. (table 2).

Canada shipped record supplies of softwood residue to the Lake States for the eighth consecutive year; Wisconsin was the chief customer. Softwood residue procured in the Lake States from other areas of the U.S. plunged to the lowest level since 1975; major suppliers were South Dakota and Wyoming.

Michigan.—Only 3 percent of the 1.49 million cords received were from out-of-State. Hardwood residue was the primary import. Aspen, soft maple, and jack pine were the species most in demand.

Wisconsin.—Of the 3.27 million cords received, 490,000 cords came from Michigan, 216,000 cords

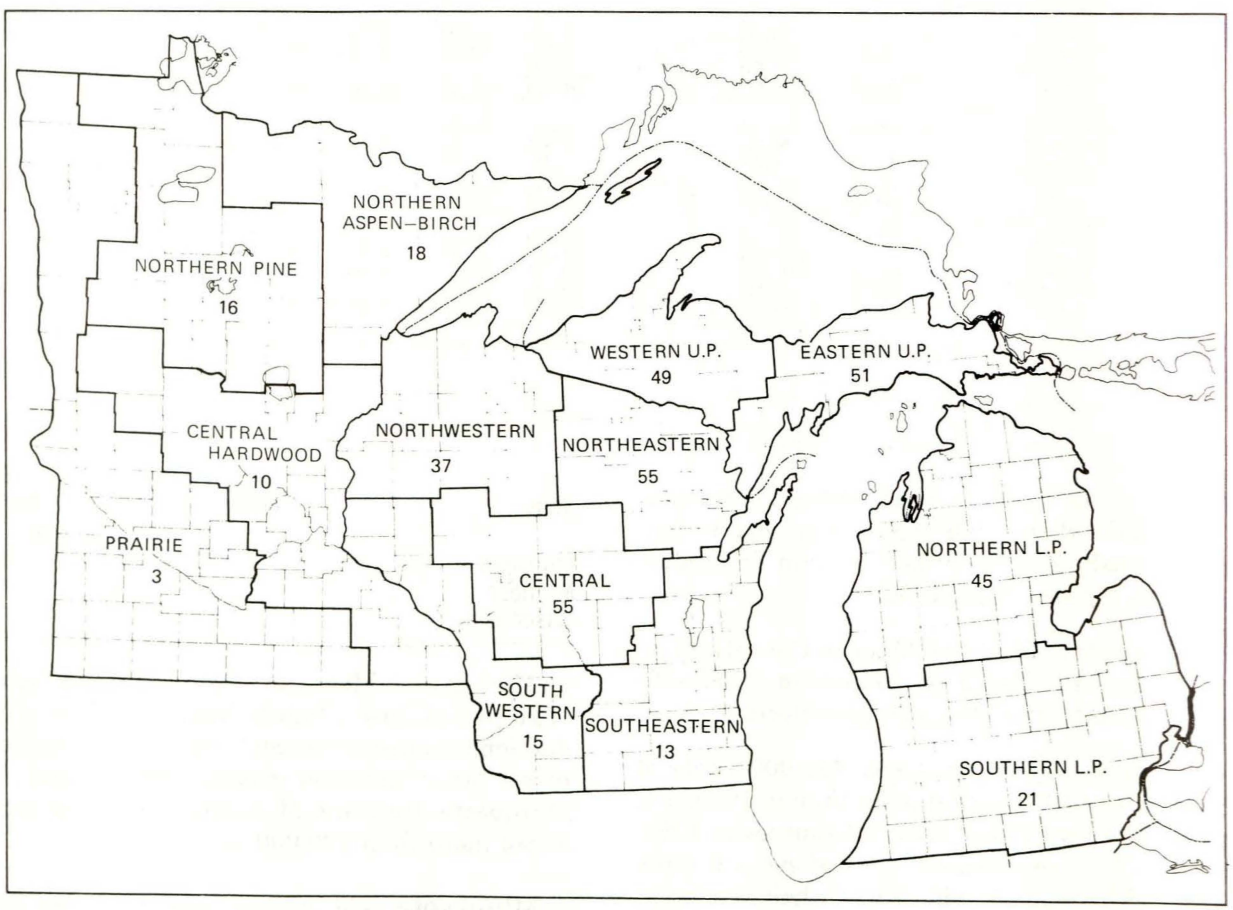


Figure 1.—*Cords of pulpwood (including chips from roundwood) harvested per 1,000 cords of merchantable volume in principal pulpwood species by Forest Inventory Unit, 1980. Merchantable volume was determined during the last forest inventory in each State.*

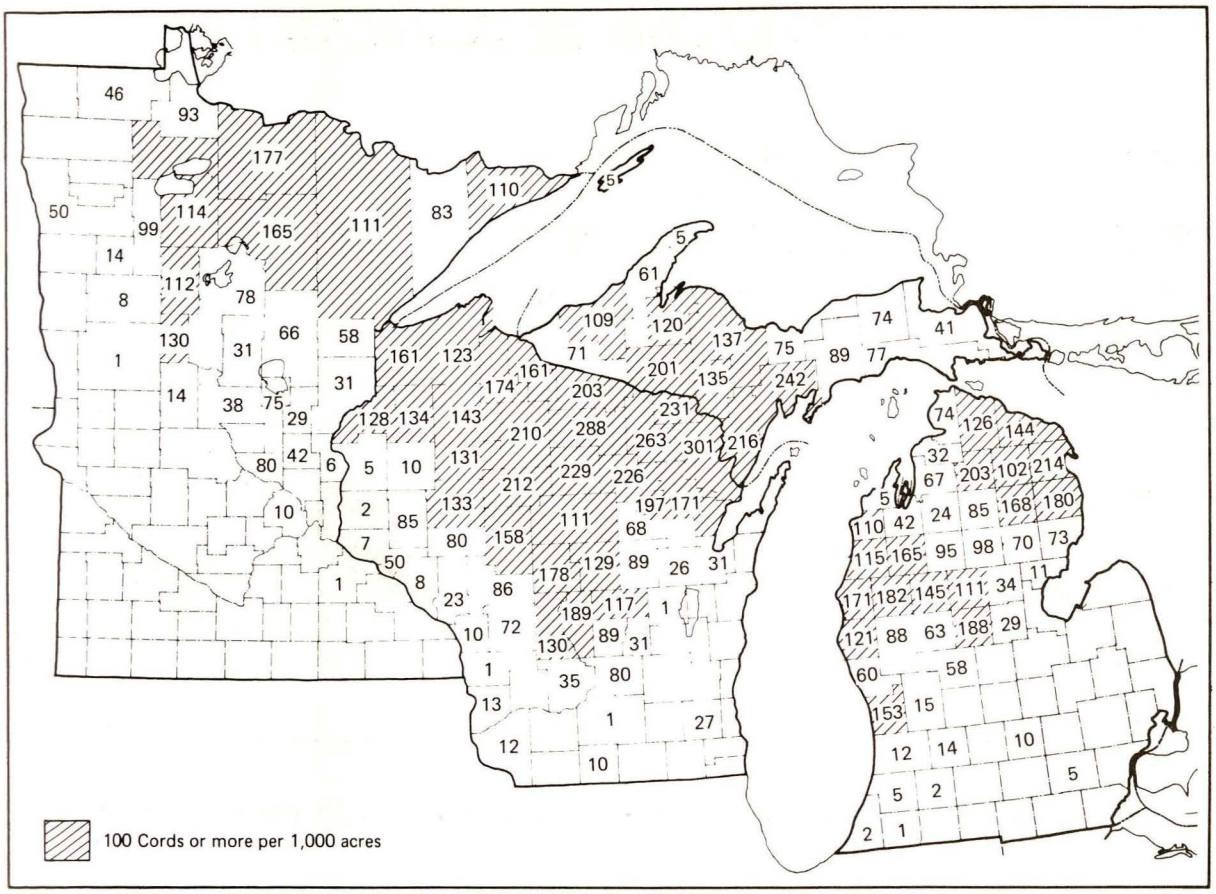


Figure 2.—*Cords of pulpwood cut per 1,000 acres of stocked commercial forest land in principal pulpwood-producing counties, 1980. Acres of stocked commercial forest land were determined during the last forest inventory in each State.*

came from Minnesota, 170,000 cords came from other (primarily western) States, and 92,000 cords came from Canada. Out-of-State sources provided two-thirds of the spruce and nine-tenths of the tamarack requirements. Canada and States outside the Lake States area furnished 82 percent of the softwood residue demand.

Company	Location	Capacity Million square feet (¾ inch basis)
Champion International Corp.	Gaylord, MI	175
Blandin Wood Products Co.	Grand Rapids, MN	45
Louisiana-Pacific Corp.	Hayward, WI	65
Weyerhaeuser Co.	Marshfield, WI	65
Rodman Industries	Marinette, WI	15

Industry Trends and Analysis

Average daily pulp production was 10,505 tons (table 3). Two pulpmills, one in Michigan and one in Minnesota closed during 1979. Wisconsin's average daily pulp production was greater than similar production in Michigan and Minnesota combined.

Annual production capacity at particleboard and waferboard plants was 365 million square feet:

One plant is tripling its capacity and another is doubling capacity. Meanwhile, a new plant neared completion in 1980 and three others will be completed between 1981 and 1984. One operating particleboard plant may close. During the last decade, softwood pulpwood production as a percent of total production has been relatively steady, ranging from 28 to 36 percent. Similarly, no trend has developed

[5]*Directory of the Forest Products Industry, 1981.*

Table 2.--Numbers of industrial plants in the Lake States using a particular species or residue for pulping and composition board in 1980

Species and kind of material	Total Lake States	Michigan	Minnesota	Wisconsin
Aspen	39	8	9	22
Balsam fir	15	3	5	7
Birch	20	6	-	14
Hemlock	8	2	-	6
Pine	10	4	2	4
Spruce	14	2	5	7
Tamarack	7	1	2	4
Maple	17	7	-	10
Oak	15	7	-	8
Other hardwoods	21	7	4	10
Softwood residue	14	2	2	10
Hardwood residue	21	7	2	12
Total plants[1/]	43	8	9	26

[1/] Some plants use more than one species, so numbers in columns cannot be added.

in hardwood pulpwood output from residue as compared with roundwood. However, softwood pulpwood production from residue has increased from 3 to 4 percent of all softwood in the early 70's to 5 to 7 percent in recent years.

CENTRAL STATES

Production

Pulpwood production fell 10 percent from 1979 to 430,000 cords (table 4). Notable declines included 26,000 cords in soft hardwoods and 25,000 cords in hardwood residue. Output from soft hardwoods was the lowest since annual production studies were established in 1955. Softwood roundwood production reached another high as thinnings continued in pine plantations. Exports from the Central States, chiefly hardwood residue, topped all previous years. Mills in Kentucky, Michigan, Ohio, Wisconsin, Oklahoma, and Tennessee procured 55 percent of the production.

Output fell in Iowa and Indiana, the leading producer; remained steady in Illinois; and climbed moderately in Missouri. Illinois harvested more softwood pulpwood than ever; no other records were broken.

Loggers harvested pulpwood in 38 Illinois counties, 25 Indiana counties, 18 Missouri counties, and 10 Iowa counties (fig. 3). Logging areas expanded in southern Illinois, southern Indiana, and northeastern Missouri and contracted in northern Illinois, eastern Iowa, and southeastern Missouri.

Receipts

Twelve Central States pulpmills received 221,000 cords, down 25 percent from 1979, and the lowest since 1960. Ten of the 12 mills produce home-building materials. Declining demand at these mills for building products led to lower pulpwood requirements. Imports were nearly halved from 1979 and constituted only 13 percent of the total receipts compared with 19 percent in 1979. Most of the cutback in imports was at Illinois mills where total receipts from all sources were the lowest recorded since annual pulpwood studies began in 1955. Twelve States, mostly Lake and southern States, shipped wood to Central States mills.

Table 3.--Active woodpulp mills in the Lake States, by location, type of pulp produced, and average daily production, 1980

(In tons per 24 hours)[1/]

Company	Location	Average production				
		Total	Sulfite	Kraft	Groundwood and other mechanical	Semi-chemical
Michigan						
Abitibi-Price Inc.	Alpena	430	0	0	430	0
Champion International	Ontonagon	440	0	0	0	440
Manistique Pulp And Paper Co.	Manistique	90	0	0	90	0
Mead Corp.	Escanaba	750	0	600	150	0
Menasha Corp.	Otsego	225	0	0	0	225
Packaging Corp Of America	Filer City	600	0	0	0	600
Warren Co., S.D.	Muskegon	250	0	250	0	0
Total	7 plants	2,785	0	850	670	1,265
Minnesota						
Blandin Paper Co.	Grand Rapids	325	0	0	325	0
Hennepin Paper Co.	Little Falls	75	0	0	75	0
Boise Cascade Corp.	International Falls	890	0	350	540	0
Potlatch Corp.	Cloquet	440	0	440	0	0
Superwood Corp.	Bemidji	90	0	0	90	0
St Regis Paper Co.	Sartell	135	0	0	135	0
Superwood Corp.	Duluth	350	0	0	350	0
Conwed Corp.	Cloquet	55	0	0	55	0
Total	8 plants	2,360	0	790	1,570	0
Wisconsin						
American Can Co.	Green Bay	210	150	0	60	0
Weyerhaeuser Co.	Rothschild	210	210	0	0	0
Badger Paper Mills	Peshtigo	110	110	0	0	0
Appleton Papers, Inc.	Combined Locks	200	0	0	200	0
Consolidated Papers, Inc.	Appleton	130	130	0	0	0
Consolidated Papers, Inc.	Stevens Point	230	0	0	230	0
Consolidated Papers, Inc.	Wisconsin Rapids	780	0	465	315	0
Green Bay Packaging, Inc.	Green Bay	200	0	0	0	200
Flambeau Paper Co.	Park Falls	110	110	0	0	0
Midtec Paper Corp.	Kimberly	150	0	0	150	0
Pentair Industries	Niagara	170	0	0	170	0
Mosinee Paper Mills Co.	Mosinee	200	0	200	0	0
Nekoosa Papers, Inc.	Nekoosa	335	0	335	0	0
Nekoosa Papers, Inc.	Port Edwards	235	235	0	0	0
Owens-Illinois	Tomahawk	1,000	0	0	0	1,000
Procter and Gamble, Inc.	Green Bay	(2/)	(2/)	(2/)	(2/)	(2/)
Rhinelander Paper Co.	Rhinelander	75	75	0	0	0
Flintkote Co.	Cornell	100	0	0	100	0
Superior Fiber Products Co.	Superior	180	0	0	180	0
Thilmany Pulp and Paper Co.	Kaukauna	400	0	400	0	0
Tomahawk Pulp Co., Inc.	Tomahawk	50	0	0	50	0
Wausau Paper Mills Co.	Brokaw	185	185	0	0	0
Superwood	Phillips	100	0	0	100	0
Total	23 plants	5,360	1,205	1,400	1,555	1,200
All states	38 plants	10,505	1,205	3,040	3,795	2,465

1/Lockwood's Directory of the Paper and Allied Industries, 1981
2/Capacity not available.

Table 4.--Production and imports of pulpwood, Central States, 1980

(In standard cords, unpeeled)[1/]

Species and destination	Production by States [2/]					Imports			Total receipts
	Illinois	Indiana	Iowa	Missouri	Regional total	Lake States	Other U.S.	Total imports	
ROUNDWOOD									
Softwoods									
Illinois	8,439	1,400	0	714	10,553	1,120	0	1,120	11,673
Indiana, Iowa, Missouri[3/]	0	0	0	0	0	0	5,200	5,200	5,200
Exported[4/]	10,029	0	61	52	10,142	0	0	0	0
Total	18,468	1,400	61	766	20,695	1,120	5,200	6,320	16,873
Soft hardwoods									
Illinois	5,232	578	0	0	5,810	656	720	1,376	7,186
Indiana, Iowa, Missouri[3/]	3,186	12,536	6,169	9,211	31,102	1,350	1,561	2,911	34,013
Exported[4/]	4,914	502	0	726	6,142	0	0	0	0
Total	13,332	13,616	6,169	9,937	43,054	2,006	2,281	4,287	41,199
Hard hardwoods									
Illinois	160	0	0	0	160	0	0	0	160
Indiana, Iowa, Missouri[3/]	4,866	12,469	10,554	3,721	31,610	1,997	1,553	3,550	35,160
Exported[4/]	20,008	12,789	0	10,260	43,057	0	0	0	0
Total	25,034	25,258	10,554	13,981	74,827	1,997	1,553	3,550	35,320
Total roundwood									
Illinois	13,831	1,978	0	714	16,523	1,776	720	2,496	19,019
Indiana, Iowa, Missouri[3/]	8,052	25,005	16,723	12,932	62,712	3,347	8,314	11,661	74,373
Exported[4/]	34,951	13,291	61	11,038	59,341	0	0	0	0
Total	56,834	40,274	16,784	24,684	138,576	5,123	9,034	14,157	93,392
RESIDUE, SOFTWOOD									
Illinois	303	0	419	42	764	2,077	1,351	3,428	4,192
Exported[4/]	589	0	4,567	2,282	7,438	0	0	0	0
Total	892	0	4,986	2,324	8,202	2,077	1,351	3,428	4,192
RESIDUE, HARDWOOD									
Illinois	7,110	6,724	0	5,511	19,345	4,381	0	4,381	23,726
Indiana, Iowa, Missouri[3/]	15,495	34,928	22,459	18,666	91,548	7,652	0	7,652	99,200
Exported[4/]	22,086	96,008	80	54,250	172,424	0	0	0	0
Total	44,691	137,660	22,539	78,427	283,317	12,033	0	12,033	122,926
ALL WOOD MATERIAL									
Illinois	21,244	8,702	419	6,267	36,632	8,234	2,071	10,305	46,937
Indiana, Iowa, Missouri[3/]	23,547	59,933	39,182	31,598	154,260	10,999	8,314	19,313	173,573
Exported[4/]	57,626	109,299	4,708	67,570	239,203	0	0	0	0
Total	102,417	177,934	44,309	105,435	430,095	19,233	10,385	29,618	220,510

[1/]Factors used in converting to standard green cords (128 cubic feet) were:
4,500 pounds of soft hardwood roundwood;
5,000 pounds of hard hardwood or coniferous roundwood;
4,100 pounds of softwood chips (green);
4,400 pounds of hardwood chips (green);
2,500 pounds of chips (all species, dry).

[2/]Vertical columns of figures under box heading "Production by States" present the amount of pulpwood cut in each State.

[3/]Combined to prevent disclosure of individual mill receipts.

[4/]Pulpwood shipped to mills outside the region.

Industry Trends and Analysis

Average daily pulp production continued at 1,150 tons per day (table 5). One mill closed permanently in 1980, another closed temporarily for part of the year, and at least one other may close temporarily due to slackening demand for products. Mill ownership remained unchanged and no firms announced significant mill expansions or new mill construction.

Softwood production continue to climb, accounting for 15 percent of all roundwood produced. Use of Central States hardwood residue by pulpmills rose rapidly from 1965 to 1976, then stabilized near 300,000 cords annually. Fuelwood markets have competed strongly with pulpwood market.

Although pulpwood exports peaked in 1980, they have remained within a narrow 20,000-cord deviation since 1976 and are not likely to increase significantly during the next 3 years. Mills using Central States wood are not planning any major expansion.

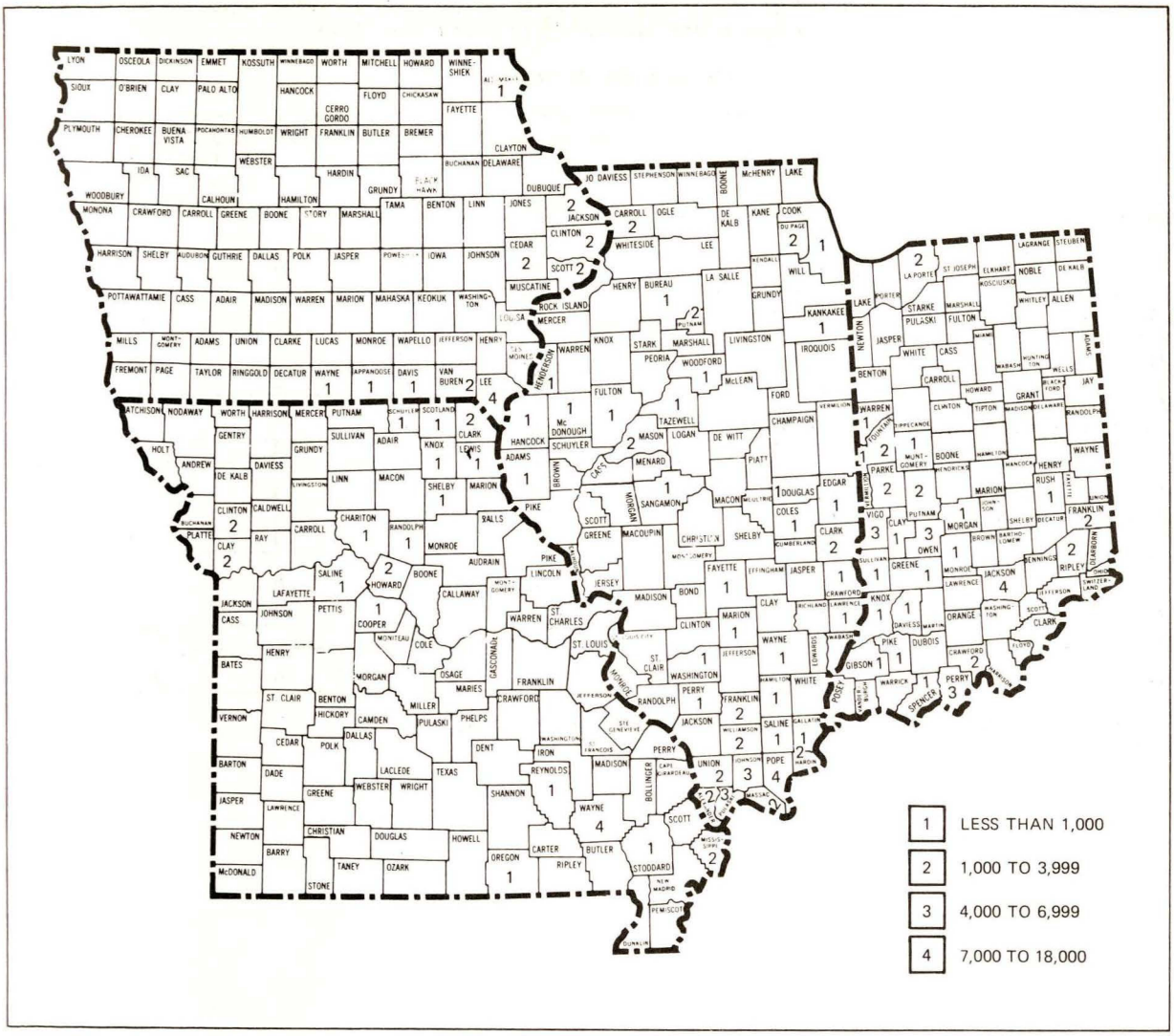


Figure 3.—*Harvest of pulpwood (including chips from roundwood) in the Central States by counties, in standard cords, 1980.*

Table 5.--Active woodpulp mills in the Central States, by location, type of pulp produced, and average daily production, 1980

(In tons per 24 hours)[1/]

Company	Location	Average production				
		Total	Sulfite	Kraft	Groundwood and other mechanical	Semi-chemical
ILLINOIS						
Bird and Son, Inc.	Chicago	40	0	0	40	0
Celotex Corp.	Peoria	90	0	0	90	0
Certain-Teed Products Corp.	East St. Louis	100	0	0	100	0
Flintkote Co., The	Mt. Carmel	40	0	0	40	0
GAF Corp.	Joliet	150	0	0	150	0
Celotex Corp.	Wilmington	30	0	0	30	0
Total	7 plants	500	0	0	500	0
INDIANA						
Weston Paper and Mfg. Co.	Terre Haute	270	0	0	0	270
Total	1 plant	270	0	0	0	270
IOWA						
Celotex Corp.	Dubuque	90	0	0	90	0
Consolidated Packaging Corp.	Fort Madison	140	0	0	0	140
Total	2 plants	230	0	0	90	140
MISSOURI						
GAF Corp.	Kansas City	90	0	0	90	0
Huebert Fibreboard, Inc.	Booneville	60	0	0	60	0
Total	2 plants	150	0	0	150	0
All States	12 plants	1,150	0	0	740	410

1/ Lockwood's Directory of the Paper and Allied Industries, 1981.
2/ Capacity not available.

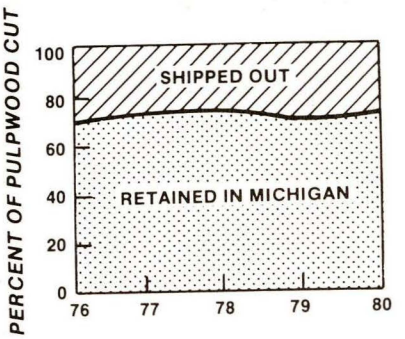
APPENDIX

Table 6.--Lake States pulpwood production[1/] by State of origin and destination, 1976-1980

(In thousand standard cords, unpeeled)

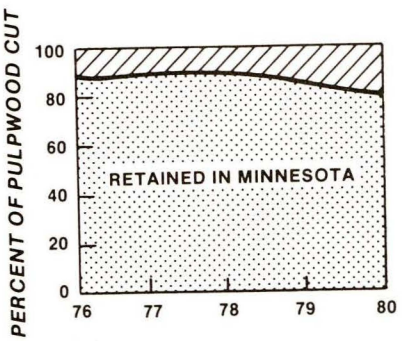
MICHIGAN

	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1976	1,541	-	434	1,081	26
1977	1,595	-	407	1,159	29
1978	1,675	-	404	1,248	23
1979	1,981	(2/)	516	1,428	37
1980	1,969	-	490	1,443	36
5 year average	1,752	(2/)	450	1,272	30



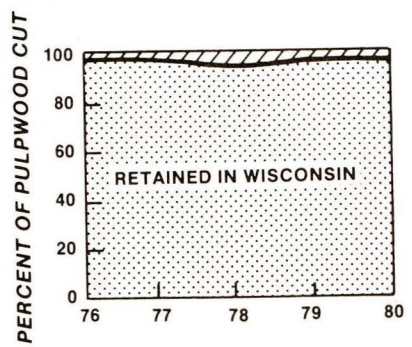
MINNESOTA

	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1976	1,309	1,109	182	-	18
1977	1,333	1,149	154	-	30
1978	1,338	1,155	162	-	21
1979	1,458	1,226	169	-	63
1980	1,333	1,044	216	-	73
5 year average	1,354	1,137	176	-	41



WISCONSIN

	Total cut	Destination of pulpwood			
		Minnesota	Wisconsin	Michigan	Other
1976	1,840	23	1,784	24	9
1977	1,816	26	1,714	64	12
1978	1,895	26	1,779	70	20
1979	2,109	20	2,024	47	18
1980	2,362	18	2,297	35	12
5 year average	2,004	23	1,919	48	14



1/Production in 1976-1978 does not include wood for particleboard or waferboard plants.

2/Less than 500 cords.

Table 7.--Lake States pulpwood production from roundwood by forest inventory unit and destination by State, 1980

(In hundred standard cords, unpeeled)

Unit	Total cut	Destination of pulpwood			
		Michigan	Minnesota	Wisconsin	Other
MICHIGAN					
E. Upper Peninsula	4,692	2,964	0	1,483	245
W. Upper Peninsula	5,660	2,720	0	2,940	0
N. Lower Peninsula	7,454	7,251	0	131	72
S. Lower Peninsula	349	349	0	0	0
Total roundwood	18,155	13,284	0	4,554	317
Total residue	1,533	1,141	0	347	45
Total	19,688	14,425	0	4,901	362
MINNESOTA					
Aspen-Birch	6,413	0	4,775	954	684
Northern Pine	5,520	0	4,537	983	0
Central Hardwood	399	0	306	91	2
Prairie	34	0	3	31	0
Total roundwood	12,366	0	9,621	2,059	686
Total residue	967	0	818	101	48
Total	13,333	0	10,439	2,160	734
WISCONSIN					
Northeastern	9,470	55	0	9,415	0
Northwestern	7,525	22	179	7,324	0
Central	3,346	0	0	3,330	16
Southwestern	275	0	0	242	33
Southeastern	116	0	0	116	0
Total roundwood	20,732	77	179	20,427	49
Total residue	2,888	273	0	2,548	67
Total	23,620	350	179	22,975	116

Table 8.--Lake States pulpwood production[1] from roundwood by species, State, and Forest Inventory Unit, 1976-1980.

(In thousand standard cords, unpeeled)

MICHIGAN

Unit	Aspen					Balsam fir					Birch					Hemlock				
	Annual production					Annual production					Annual production					Annual production				
	1976	1977	1978	1979	1980	1976	1977	1978	1979	1980	1976	1977	1978	1979	1980	1976	1977	1978	1979	1980
Eastern Upper Peninsula	93	106	103	125	116	41	48	44	43	57	20	22	28	35	29	35	31	24	26	32
Western Upper Peninsula	176	195	220	204	209	31	45	42	41	46	29	29	46	53	40	44	31	24	19	26
Northern Lower Peninsula	216	222	257	375	374	3	2	1	1	6	20	11	16	21	34	(2/)	(2/)	(2/)	-	(2/)
Southern Lower Peninsula	6	9	6	5	6	-	-	-	-	--	(2/)	(2/)	(2/)	(2/)	(2/)	-	-	-	-	-
Total	491	532	586	709	705	75	95	87	85	109	69	62	90	109	103	79	62	48	45	58

MINNESOTA

Aspen-Birch	372	375	363	392	313	44	60	59	72	73	21	15	2	3	11	-	-	-	-	-
Northern Pine	276	292	306	404	357	30	39	37	46	38	23	13	5	1	4	-	-	-	-	-
Central Hardwood	25	30	35	41	29	(2/)	-	-	(2/)	--	2	2	2	3	(2/)	-	-	-	-	-
Prairie	-	-	-	1	(2/)	-	-	-	-	--	-	-	-	-	-	-	-	-	-	-
Total	673	697	704	838	699	74	99	96	118	111	46	30	9	7	15	-	-	-	-	-

WISCONSIN

Northeastern	345	334	331	364	459	61	57	53	60	66	50	54	62	76	91	27	32	30	26	26
Northwestern	308	329	300	319	326	26	15	21	23	35	56	44	53	63	80	9	8	19	13	6
Central	38	31	37	66	85	2	1	1	1	1	8	5	6	11	15	7	3	4	1	2
Southwestern	-	1	1	1	1	-	-	-	-	--	-	(2/)	(2/)	(2/)	(2/)	-	-	-	-	-
Southeastern	2	1	(2/)	1	2	-	-	(2/)	-	--	(2/)	(2/)	(2/)	1	(2/)	-	-	-	-	-
Total	693	696	669	751	873	89	73	75	84	102	114	103	121	151	186	43	43	53	40	34
Lake States	1,857	1,925	1,959	2,298	2,277	238	267	258	287	322	229	195	220	267	304	122	105	101	85	92

(Table 8 continued on next page)

1/ Production in 1976-1978 does not include wood for particleboard or waferboard plants.
2/ Less than 500 cords.
3/ Includes small quantity of cedar not shown in other parts of table.

Table 8.--continued

MICHIGAN

Unit	Pine					Spruce					Tamarack					Other hardwoods				
	Annual production					Annual production					Annual production					Annual production				
	1976	1977	1978	1979	1980	1976	1977	1978	1979	1980	1976	1977	1978	1979	1980	1976	1977	1978	1979	1980
Eastern Upper Peninsula	88	82	85	119	70	17	27	25	21	34	(2/)	2	1	1	3	82	69	73	83	124
Western Upper Peninsula	43	49	50	48	53	14	21	18	17	23	1	1	1	1	3	88	84	134	174	163
Northern Lower Peninsula	140	119	122	166	124	1	(2/)	(2/)	1	1	-	-	-	-	-	147	162	179	194	206
Southern Lower Peninsula	10	12	20	17	21	-	-	-	-	-	-	-	-	-	-	3	18	3	5	8
Total	281	262	277	350	268	32	48	43	39	58	1	3	2	2	6	320	333	389	456	501

MINNESOTA

Aspen-Birch	104	97	89	75	66	129	110	126	119	127	19	24	18	18	22	19	12	17	18	30
Northern Pine	64	73	89	75	76	46	43	38	34	43	17	15	10	16	18	7	5	9	9	16
Central Hardwood	4	4	8	8	9	(2/)	(2/)	(2/)	(2/)	(2/)	(2/)	(2/)	-	(2/)	(2/)	6	8	13	4	2
Prairie	-	-	-	-	-	-	-	(2/)	-	(2/)	1	3	2	2	3	-	-	-	-	(2/)
Total	172	174	186	158	151	175	153	164	153	170	37	42	30	36	43	32	25	39	31	48

WISCONSIN

Northeastern	55	68	98	95	95	14	16	16	14	27	2	2	2	1	2	158	152	113	150	181
Northwestern	96	103	122	113	113	4	3	3	4	5	1	1	1	1	1	122	104	159	165	186
Central	124	113	121	127	149	1	(2/)	(2/)	(2/)	1	(2/)	1	(2/)	(2/)	(2/)	140	121	91	121	82
Southwestern	5	8	11	20	22	-	-	-	-	(2/)	-	-	-	-	-	3	4	8	4	4
Southeastern	6	4	5	6	8	-	-	-	1	(2/)	-	-	-	-	-	2	2	2	1	2
Total	286	296	357	361	387	19	19	19	19	33	3	4	3	2	3	425	383	373	441	455
Lake States	739	732	820	869	806	226	220	226	211	261	41	49	35	40	52	777	741	801	928	1004

(Table 8 continued on next page)

Table 8.--continued

Unit	All species3/ Annual production				
	1976	1977	1978	1979	1980
MICHIGAN					
Eastern Upper Peninsula	379	390	387	457	469
Western Upper Peninsula	428	458	537	561	566
Northern Lower Peninsula	527	516	575	759	745
Southern Lower Peninsula	19	39	29	27	35
Total	1,353	1,403	1,528	1,804	1,815
MINNESOTA					
Aspen-Birch	708	693	674	696	642
Northern Pine	463	480	494	585	552
Central Hardwood	37	44	58	56	40
Prairie	1	3	2	3	3
Total	1,209	1,220	1,228	1,340	1,237
WISCONSIN					
Northeastern	712	716	706	786	947
Northwestern	622	608	678	701	752
Central	320	275	260	327	335
Southwestern	8	13	20	25	27
Southeastern	10	7	7	10	12
Total	1,672	1,619	1,671	1,849	2,073
Lake States	4,234	4,242	4,427	4,993	5,125

Table 9.--Lake States pulpwood production from roundwood by county and species, 1980

(In standard cords, unpeeled)

MICHIGAN

Unit and county[1/]	Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tama-rack	Ash	Aspen	Balsam poplar	Bass-wood
E. UPPER PENINSULA												
Alger	444	3,156	4,207	4,235	4,008	1,155	2,266	333	153	3,799	503	197
Chippewa	273	6,005	2,013	10,095	635	526	5,164	314	19	3,285	225	0
Delta	1,246	16,253	8,925	5,804	4,184	2,273	8,020	962	876	44,343	5,497	1,892
Luce	164	5,464	5,054	11,101	661	1,035	5,096	278	44	4,249	266	203
Mackinac	780	6,260	2,205	2,822	719	469	4,655	201	50	10,588	1,463	600
Menominee	484	14,288	5,911	2,605	1,521	951	5,207	525	1,493	39,510	1,112	700
Schoolcraft	716	5,650	4,237	11,251	2,799	1,033	3,210	432	91	10,571	1,361	1,014
Total	4,107	57,076	32,552	47,913	14,527	7,442	33,618	3,045	2,726	116,345	10,427	4,606
W. UPPER PENINSULA												
Baraga	621	2,742	3,491	1,119	921	824	1,473	302	439	9,468	0	3,003
Dickinson	170	6,369	1,417	457	440	298	2,443	279	940	34,048	214	302
Gogebic	354	3,794	3,705	582	1,142	636	2,535	266	383	12,461	0	399
Houghton	297	2,802	2,414	1,826	1,742	795	999	223	224	7,541	0	204
Iron	465	14,058	3,620	5,075	3,277	1,063	6,892	558	1,408	53,879	105	407
Keweenaw	0	167	297	0	0	0	207	0	5	0	0	0
Marquette	1,242	14,808	9,574	18,813	9,023	3,892	7,222	920	402	42,258	2,388	3,432
Ontonagon	46	1,631	1,084	176	790	98	821	165	2,415	49,039	0	282
Total	3,195	46,371	25,602	28,048	17,335	7,606	22,592	2,713	6,216	208,694	2,707	8,029
N. LOWER PENINSULA						0						
Alcona	0	27	0	2,287	486	0	130	0	624	36,343	1,768	104
Alpena	0	655	0	2,117	0	0	608	0	1,248	23,132	1,144	104
Antrim	0	0	0	0	112	0	0	0	104	6,896	0	104
Arenac	0	0	0	0	0	0	0	0	0	728	0	0
Benzie	0	0	0	0	20	0	0	0	387	5,189	0	237
Charlevoix	0	536	0	26	0	0	28	0	0	3,276	0	0
Cheboygan	0	1,253	0	2,886	908	0	116	0	208	24,734	208	1,294
Clare	0	0	0	0	0	0	0	0	289	18,367	0	104
Crawford	0	131	0	10,196	0	0	55	0	104	9,445	0	260
Emmet	0	0	0	76	1,121	0	0	0	0	9,063	0	56
Gladwin	0	0	0	0	37	0	0	0	31	4,602	0	12
Grand Traverse	0	0	0	243	1,121	283	0	0	208	3,100	0	208
Iosco	0	20	0	5,445	2,719	0	0	0	210	4,569	104	0
Isabella	0	0	0	0	677	0	0	0	866	11,089	0	0
Kalkaska	0	0	0	2,478	1,063	0	0	0	0	2,417	0	0
Lake	0	0	0	14,000	3,000	1,199	0	0	587	10,964	0	520
Leelanau	0	0	0	0	287	0	0	0	21	44	0	21
Manistee	0	0	0	0	770	0	0	0	320	9,959	0	321
Mason	0	0	0	0	2,051	0	0	0	196	9,597	0	193
Mecosta	0	0	0	0	1,000	99	0	0	72	6,143	0	0
Midland	0	0	0	0	0	0	0	0	104	3,682	0	25
Missaukee	0	376	0	38	473	0	18	0	197	13,854	0	0
Montmorency	0	248	0	6,042	874	0	35	0	416	13,843	520	104
Newaygo	0	0	0	0	8,332	0	0	0	157	10,014	0	0
Oceana	0	0	0	0	4,607	0	0	0	75	5,100	0	54
Ogemaw	0	44	0	159	690	0	0	0	4	9,974	104	52
Osceola	0	0	0	3,003	426	0	0	0	28	12,324	0	21
Oscoda	0	92	0	8,531	360	0	26	0	320	26,579	624	104
Otsego	0	25	0	9,615	2,805	0	0	0	0	28,031	0	0
Presque Isle	0	2,410	49	1,982	0	0	438	0	832	23,423	1,040	208
Roscommon	0	0	0	5,015	467	0	0	0	3	16,744	0	48
Wexford	0	0	0	6,375	7,491	0	0	0	521	10,340	0	520
Total	0	5,817	49	80,514	41,897	1,581	1,454	0	8,132	373,565	5,512	4,674
S. LOWER PENINSULA												
Allegan	0	0	0	149	400	0	0	0	0	883	0	0
Barry	0	0	0	0	309	0	0	0	5	515	0	0
Berrien	0	0	0	149	6	0	0	0	0	0	0	0
Cass	0	0	0	0	80	0	0	0	0	0	0	0
Ingham	0	0	0	0	533	0	0	0	0	0	0	0
Kalamazoo	0	0	0	0	131	0	0	0	0	36	0	0
Kent	0	0	0	0	274	123	0	0	0	806	0	0
Montcalm	0	0	0	476	1,096	0	0	0	172	3,121	0	0
Muskegon	0	0	0	0	4,833	0	0	0	6	771	0	0
Ottawa	0	0	0	1,001	9,736	532	0	0	0	232	0	0
Van Buren	0	0	0	0	420	0	0	0	0	0	0	0
Washtenaw	0	0	0	0	300	82	0	0	0	0	0	0
Total	0	0	0	1,775	18,118	737	0	0	183	6,364	0	0
State total	7,302	109,264	58,203	158,250	91,877	17,366	57,664	5,758	17,257	704,968	18,646	17,309

(Table 9 continued on next page)

(Table 9 continued)

MICHIGAN

Unit and county[1/]	Beech	White birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Other hard-woods	All species
E. UPPER PENINSULA												
Alger	2,513	898	1,002	0	1,183	0	6,095	2,823	239	1	673	39,883
Chippewa	365	356	209	0	195	0	917	518	70	0	196	31,380
Delta	5,180	10,410	2,295	0	3,893	0	14,813	9,389	860	7	2,834	149,956
Luce	701	605	405	0	368	0	1,887	1,059	126	20	188	38,974
Mackinac	1,431	2,183	441	0	774	0	4,023	2,522	360	2	517	43,065
Menominee	1,755	6,479	947	0	2,579	0	10,585	11,636	792	172	308	109,560
Schoolcraft	1,808	2,025	331	0	1,164	0	4,795	3,195	196	16	407	56,302
Total	13,753	22,956	5,630	0	10,156	0	43,115	31,142	2,643	218	5,123	469,120
W. UPPER PENINSULA				0								
Baraga	0	4,074	3,818	0	5,354	0	16,485	6,874	490	1	1,914	63,413
Dickinson	0	2,615	946	0	1,557	0	4,001	2,083	476	8	1,013	60,076
Gogebic	0	357	2,035	0	5,570	0	8,202	1,577	177	0	477	44,652
Houghton	0	1,645	1,897	0	2,216	0	5,487	2,387	178	20	655	33,552
Iron	0	5,097	6,566	0	6,682	0	18,952	7,049	686	95	1,584	137,518
Keweenaw	0	52	70	0	122	0	161	52	0	0	14	1,147
Marquette	0	5,988	1,459	0	3,430	0	13,098	6,348	1,375	120	2,190	147,982
Ontonagon	0	1,588	2,108	0	4,571	0	5,774	6,689	66	0	324	77,667
Total	0	21,416	18,899	0	29,502	0	72,160	33,059	3,448	244	8,171	566,007
N. LOWER PENINSULA						0						
Alcona	104	2,584	0	0	0	0	312	4,818	6,605	832	0	57,024
Alpena	208	1,904	0	0	0	0	728	6,797	4,354	624	0	43,623
Antrim	104	597	0	0	0	0	186	1,767	2,205	0	104	12,179
Arenac	0	0	0	0	0	0	104	312	0	0	0	1,144
Benzie	371	248	0	0	0	0	1,412	3,320	1,710	21	208	13,123
Charlevoix	0	209	0	0	0	0	0	943	70	0	0	5,088
Cheboygan	1,079	3,335	0	0	0	0	104	3,410	1,654	0	0	41,189
Clare	207	1,337	0	0	0	0	435	1,341	2,500	149	87	24,816
Crawford	104	1,004	0	0	0	0	156	2,026	1,562	57	52	25,152
Emmet	0	1,105	0	0	0	0	0	1,290	661	0	0	13,372
Gladwin	0	366	0	0	0	0	0	727	341	0	0	6,116
Grand Traverse	208	95	0	0	0	0	208	250	208	208	208	6,548
Iosco	104	496	0	0	0	0	211	1,550	1,676	225	0	17,329
Isabella	399	160	0	0	0	0	1,234	1,580	1,307	403	142	17,857
Kalkaska	0	280	0	0	0	0	0	118	101	0	0	6,457
Lake	322	340	0	0	0	0	608	9,320	11,170	572	108	52,710
Leelanau	21	0	0	0	0	0	30	21	21	21	42	529
Manistee	527	973	0	0	0	0	423	6,653	4,153	193	528	24,820
Mason	179	896	0	0	0	0	232	4,832	7,792	209	146	26,323
Mecosta	55	158	0	0	0	0	166	651	381	82	17	8,824
Midland	0	310	0	0	0	0	0	624	0	0	0	4,745
Missaukee	123	1,092	0	0	0	0	398	2,329	2,067	51	53	21,069
Montmorency	0	2,299	0	0	0	0	208	2,584	1,524	104	0	28,801
Newaygo	108	81	0	0	0	0	273	826	5,942	672	72	26,477
Oceana	49	152	0	0	0	0	80	2,542	4,428	347	63	17,497
Ogemaw	52	1,073	0	0	0	0	5	1,087	3,153	36	0	16,433
Osceola	25	325	0	0	0	0	64	2,242	5,769	251	22	24,500
Oscoda	104	2,577	0	0	0	0	115	4,562	5,482	604	0	50,080
Otsego	0	3,281	0	0	0	0	0	3,333	2,703	0	0	49,793
Presque Isle	104	4,937	0	0	0	0	208	4,219	446	0	0	40,296
Roscommon	0	1,547	0	0	0	0	4	1,127	835	26	0	25,816
Wexford	520	814	0	0	0	0	522	5,571	2,360	217	416	35,667
Total	5,077	34,575	0	0	0	0	8,426	82,772	83,180	5,904	2,268	745,397
S. LOWER PENINSULA												
Allegan	0	0	0	0	0	0	100	5	37	8	0	1,582
Barry	0	5	0	0	0	0	7	33	230	49	0	1,153
Berrien	0	0	0	0	0	0	0	0	0	0	0	155
Cass	0	0	0	0	0	0	0	0	0	0	0	80
Ingham	0	0	0	0	0	0	0	0	0	0	0	533
Kalamazoo	0	0	0	0	0	0	0	0	0	0	0	167
Kent	0	0	0	0	0	0	0	0	543	0	0	1,746
Montcalm	56	4	0	0	0	0	137	327	1,556	268	63	7,276
Muskegon	0	6	0	0	0	0	8	39	3,699	58	0	9,420
Ottawa	0	0	0	0	0	0	0	0	446	0	0	11,947
Van Buren	0	0	0	0	0	0	0	0	0	0	0	420
Washtenaw	0	0	0	0	0	0	0	0	0	0	0	382
Total	56	15	0	0	0	0	252	404	6,511	383	63	34,861
State total	18,886	78,962	24,529	0	39,658	0	123,953	147,377	95,782	6,749	15,625	1,815,385

(Table 9 continued on next page)

(Table 9 continued)

MINNESOTA

Unit and county[1/]	Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tama-rack	Ash	Aspen	Balsam poplar	Bass-wood
ASPEN-BIRCH												
Carlton	0	932	0	416	364	48	2,101	194	0	11,704	2,080	0
Cook	0	21,940	0	4,721	2	0	14,910	0	0	17,083	52	0
Koochiching	0	22,761	0	9,546	1,064	313	64,378	17,865	104	94,601	12,121	0
Lake	0	5,790	0	12,038	466	1,144	18,436	69	0	28,141	624	0
St. Louis	0	21,459	0	26,845	6,199	2,458	26,707	3,707	42	161,585	14,995	0
Total	0	72,882	0	53,566	8,095	3,963	126,532	21,835	146	313,114	29,872	0
NORTHERN PINE												
Aitkin	0	809	0	281	21	9	1,351	2,488	0	37,613	1,768	0
Becker	0	59	0	1,090	156	88	0	42	0	894	33	0
Beltrami	0	10,192	0	11,070	2,202	330	11,856	6,131	94	44,423	2,137	19
Cass	0	864	0	8,872	1,777	493	532	1,369	50	49,102	662	0
Clearwater	0	1,523	0	2,870	378	106	2,098	2,766	0	19,271	478	18
Crow Wing	0	75	0	4,902	1,049	31	314	0	0	4,732	206	0
Hubbard	0	783	0	5,003	1,396	177	551	707	0	33,376	2,337	19
Itasca	0	23,455	0	8,261	1,564	621	10,848	2,342	62	153,655	6,353	0
Lake of the Woods	0	272	0	6,363	260	139	12,276	1,504	0	9,969	1,098	0
Mahnomen	0	0	0	208	87	0	0	0	0	1,105	104	0
Roseau	0	52	0	3,269	312	264	3,018	275	0	1,347	136	0
Wadena	0	11	0	9,347	2,435	290	14	0	0	1,585	250	0
Total	0	38,095	0	61,536	11,637	2,548	42,858	17,624	206	357,072	15,562	56
CENTRAL HARDWOOD		0										
Chisago	0	0	0	193	103	0	0	0	0	0	0	0
Goodhue	0	0	0	0	15	11	0	0	0	0	0	0
Hennepin	0	0	0	0	0	0	0	0	0	0	0	0
Isanti	0	0	0	1,172	777	0	0	0	0	0	0	0
Kanabec	0	0	0	0	0	0	0	0	0	3,387	284	0
Mille Lacs	0	0	0	104	24	0	62	177	0	8,745	0	8
Morrison	0	0	0	219	86	0	0	0	0	5,292	0	0
Otter Tail	0	0	0	0	0	0	0	0	0	130	10	0
Pine	0	0	0	343	218	50	199	11	0	11,291	711	0
Ramsey	0	0	0	0	0	0	0	0	0	0	0	0
Sherburne	0	0	0	2,589	1,857	49	0	0	0	0	0	0
Todd	0	0	0	1,087	153	0	0	0	0	104	36	0
Total	0	0	0	5,707	3,233	110	261	188	0	28,949	1,041	8
PRAIRIE												
Polk	0	0	0	0	0	0	219	2,883	0	253	16	0
Total	0	0	0	0	0	0	219	2,883	0	253	16	0
State total	0	110,977	0	120,809	22,965	6,621	169,870	42,530	352	699,388	46,491	64

Unit and county[1/]	Beech	White birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Other hard-woods	All species
ASPEN-BIRCH												
Carlton	0	159	0	0	0	0	0	0	0	0	0	17,998
Cook	0	0	0	0	0	0	0	0	0	0	0	58,708
Koochiching	0	960	0	0	0	0	276	104	0	0	0	224,093
Lake	0	3,853	0	0	0	0	0	0	0	0	0	70,561
St. Louis	0	5,907	0	0	0	0	62	0	0	0	0	269,966
Total	0	10,879	0	0	0	0	338	104	0	0	0	641,326
NORTHERN PINE												
Aitkin	0	102	0	0	0	0	0	0	0	0	0	44,442
Becker	0	0	0	0	0	0	0	0	0	0	0	2,362
Beltrami	0	367	0	0	1	0	211	0	2	4	0	89,039
Cass	0	2,910	0	0	37	0	15	17	0	0	0	66,700
Clearwater	0	166	0	0	0	0	104	0	0	0	0	29,778
Crow Wing	0	156	0	0	0	0	0	0	0	0	0	11,465
Hubbard	0	55	0	0	0	0	0	0	0	0	0	44,404
Itasca	0	456	0	0	0	0	208	51	0	0	0	207,876
Lake of the Woods	0	0	0	0	0	0	0	0	0	0	0	31,881
Mahnomen	0	0	0	0	0	0	0	0	0	0	0	1,504
Roseau	0	0	0	0	0	0	0	0	0	0	0	8,673
Wadena	0	0	0	0	0	0	0	0	0	0	0	13,932
Total	0	4,212	0	0	38	0	538	68	2	4	0	552,056
CENTRAL HARDWOOD												
Chisago	0	0	0	0	0	0	0	0	0	0	0	296
Goodhue	0	0	0	0	0	0	0	0	0	0	0	26
Hennepin	0	0	0	0	78	0	0	0	0	0	0	78
Isanti	0	0	0	0	0	0	0	0	0	0	0	1,949
Kanabec	0	46	0	0	0	0	0	0	0	0	0	3,717
Mille Lacs	0	0	0	0	0	0	0	0	0	0	0	9,120
Morrison	0	0	0	0	0	0	0	0	0	0	0	5,597
Otter Tail	0	0	0	0	0	0	0	0	0	0	0	140
Pine	0	108	0	0	0	0	0	0	0	0	0	12,931
Ramsey	0	0	0	0	134	0	0	0	0	0	0	134
Sherburne	0	0	0	0	0	0	0	0	0	0	0	4,495
Todd	0	0	0	0	0	0	0	0	0	0	0	1,380
Total	0	154	0	0	212	0	0	0	0	0	0	39,863
PRAIRIE												
Polk	0	0	0	0	0	0	0	0	0	0	0	3,371
Total	0	0	0	0	0	0	0	0	0	0	0	3,371
State total	0	15,245	0	0	250	0	876	172	2	4	0	1,236,616

(Table 9 continued on next page)

Unit and county[1/]	Cedar	Balsam fir	Hemlock	Jack pine	Red pine	White pine	Spruce	Tama-rack	Ash	Aspen	Balsam poplar	Bass-wood
NORTHEASTERN												
Florence	0	3,011	724	1,010	1,162	74	1,999	57	520	36,016	0	89
Forest	0	18,943	2,286	808	5,175	78	7,326	229	4,061	59,621	0	2,248
Langlade	0	4,613	291	366	2,460	0	2,115	331	2,260	40,487	0	1,288
Lincoln	24	3,152	611	1,099	2,391	192	878	156	2,580	36,198	0	3,950
Marinette	0	7,472	2,071	18,462	11,213	485	5,849	261	1,921	114,586	0	107
Menominee	0	49	14,925	816	802	1,218	0	0	287	16,672	0	0
Oconto	0	1,344	471	10,570	5,946	44	1,470	335	534	30,341	0	61
Oneida	0	18,403	3,135	5,268	9,272	1,251	5,656	314	2,433	68,459	0	2,031
Shawano	0	169	580	1,179	4,209	23	0	27	267	17,677	0	10
Vilas	10	8,175	768	3,494	4,356	1,376	2,202	99	794	38,928	0	1,100
Total	34	65,331	25,862	43,072	46,986	4,741	27,495	1,809	15,657	458,985	0	10,884
NORTHWESTERN												
Ashland	3	12,960	469	1,579	2,143	424	1,375	109	2,062	40,585	0	194
Barron	0	0	0	250	215	0	0	0	17	836	0	0
Bayfield	0	2,428	196	14,459	2,997	723	240	15	507	53,799	0	2
Burnett	0	22	0	16,344	2,668	147	0	0	19	20,118	0	0
Douglas	0	365	0	37,486	5,086	0	66	82	99	49,263	0	0
Iron	0	2,800	566	401	609	533	418	70	1,845	17,610	0	804
Polk	0	0	0	505	80	12	0	0	2	618	0	0
Price	53	6,233	2,206	812	1,726	306	883	690	7,116	35,072	0	3,053
Rusk	0	195	468	134	174	0	0	81	2,186	18,405	0	1,127
Sawyer	0	6,580	1,167	1,578	1,580	220	464	7	2,932	41,692	0	1,357
Taylor	0	2,987	1,112	535	890	23	636	193	3,296	27,060	0	1,818
Washburn	0	483	0	7,964	10,275	354	241	0	247	21,217	0	0
Total	56	35,053	6,184	82,047	28,443	2,742	4,323	1,247	20,328	326,275	0	8,355
CENTRAL												
Adams	0	2	0	25,060	10,148	1,224	12	106	118	521	0	0
Chippewa	0	78	185	798	2,986	27	10	0	932	11,132	0	513
Clark	0	25	636	2,303	2,635	105	0	26	1,050	18,516	0	24
Eau Claire	0	0	0	3,231	2,153	55	5	0	218	2,735	0	14
Jackson	0	0	0	12,541	4,766	462	14	106	159	3,405	0	0
Juneau	0	0	0	9,132	6,931	2,326	0	0	164	1,902	0	0
Marathon	0	922	1,101	1,468	4,032	402	208	16	321	21,080	0	97
Marquette	0	0	0	1,596	1,849	192	0	2	39	108	0	0
Monroe	0	0	0	8,058	3,308	520	0	60	121	362	0	0
Portage	0	46	147	4,931	4,560	1,489	29	70	120	3,674	0	24
Waupaca	0	24	12	1,106	3,183	86	0	0	148	7,065	0	20
Waushara	0	0	0	2,568	8,981	952	0	0	29	89	0	0
Wood	0	0	45	6,467	5,040	1,680	306	0	501	14,167	0	0
Total	0	1,097	2,126	79,259	60,572	9,520	584	386	3,920	84,756	0	692
SOUTHWESTERN												
Buffalo	0	0	0	126	625	69	0	0	0	480	0	0
Crawford	0	0	0	0	0	0	0	0	47	220	0	87
Dunn	0	0	0	2,911	7,829	392	0	0	9	21	0	0
Grant	0	0	0	0	30	0	0	0	45	209	0	86
Iowa	0	0	0	0	23	5	0	0	0	14	0	0
Lacrosse	0	0	0	39	890	25	0	0	0	0	0	0
Pepin	0	0	0	610	1,059	177	55	0	3	75	0	0
Pierce	0	0	0	61	230	48	22	0	1	22	0	0
Richland	0	0	0	0	9	0	0	0	0	0	0	0
St. Croix	0	0	0	0	0	0	0	0	0	94	0	0
Sauk	0	0	0	1,417	2,803	441	0	0	31	0	0	0
Trempealeau	0	0	0	229	1,990	193	0	0	2	37	0	0
Vernon	0	0	0	0	85	12	0	0	1	0	0	0
Total	0	0	0	5,393	15,573	1,362	77	0	139	1,172	0	173
SOUTHEASTERN												
Brown	0	0	0	27	522	0	0	0	0	540	0	0
Columbia	0	0	0	518	3,989	114	0	0	111	68	0	0
Dane	0	0	0	0	46	23	0	0	0	0	0	0
Door	0	0	0	0	20	0	0	0	0	0	0	0
Green	0	0	0	21	274	0	0	0	0	0	0	0
Green Lake	0	0	0	14	625	48	0	0	28	0	0	0
Outagamie	0	0	0	0	226	47	17	0	0	1,352	0	0
Waukesha	0	0	0	0	1,078	64	0	0	2	0	0	0
Winnebago	0	0	0	22	0	0	0	0	0	0	0	0
Total	0	0	0	602	6,780	296	17	0	141	1,960	0	0
State total	90	101,481	34,172	210,373	158,354	18,661	32,496	3,442	40,185	873,148	0	20,104

(Table 9 continued on next page)

(Table 9 continued)

WISCONSIN

Unit and county[1/]	Beech	White birch	Yellow birch	Cotton-wood	Elm	Hickory	Hard maple	Soft maple	Red oak	White oak	Other hard-woods	All species
NORTHEASTERN												
Florence	0	4,321	1,164	0	2,500	0	4,733	1,577	719	164	56	59,896
Forest	1	10,268	1,961	0	4,046	0	13,615	4,136	658	122	631	136,213
Langlade	0	5,084	1,491	0	4,441	79	14,230	4,199	769	42	857	85,403
Lincoln	0	4,985	1,304	0	13,602	0	15,292	2,443	1,364	0	239	90,460
Marinette	35	15,067	713	0	2,806	0	4,043	3,858	2,644	525	224	192,342
Menominee	0	137	175	0	2,453	197	1,790	2,394	196	58	199	42,368
Oconto	0	5,543	91	0	965	0	1,004	762	389	70	53	59,993
Oneida	0	20,818	2,037	0	2,106	0	10,431	4,801	4,077	208	454	161,154
Shawano	0	355	205	0	3,220	336	2,890	452	1,024	38	226	32,887
Vilas	0	14,082	1,118	0	543	0	5,518	1,480	1,956	243	66	86,308
Total	36	80,660	10,259	0	36,682	612	73,546	26,102	13,796	1,470	3,005	947,024
NORTHWESTERN												
Ashland	0	9,488	1,798	0	3,856	0	7,516	3,105	1,325	137	82	89,210
Barron	0	28	3	0	32	0	54	51	38	11	1	1,536
Bayfield	0	13,971	187	0	677	0	1,017	455	612	12	8	92,305
Burnett	0	335	0	0	55	0	208	92	50	16	0	40,074
Douglas	0	3,549	6	0	96	0	201	154	72	24	1	96,550
Iron	0	4,062	1,015	0	12,521	0	13,485	1,391	828	122	69	59,149
Polk	0	3	0	0	11	0	13	8	4	2	0	1,258
Price	0	14,155	3,584	0	17,911	0	17,380	7,050	3,879	860	232	123,201
Rusk	0	5,579	1,065	0	2,358	0	5,490	2,683	1,786	372	133	42,236
Sawyer	0	9,580	1,458	0	2,862	0	10,087	2,588	1,294	244	385	86,075
Taylor	0	5,662	1,746	0	11,337	0	12,778	3,406	1,601	389	275	75,744
Washburn	0	2,030	173	0	257	0	1,164	447	218	53	16	45,139
Total	0	68,442	11,035	0	51,973	0	69,393	21,430	11,707	2,242	1,202	752,477
CENTRAL												
Adams	0	229	3	0	509	0	228	416	5,223	2,276	2	46,077
Chippewa	0	2,741	801	0	1,309	0	1,522	1,313	1,808	880	28	27,063
Clark	2	2,886	503	0	1,949	0	1,597	1,362	6,054	2,519	53	42,245
Eau Claire	1	488	72	0	495	0	389	561	1,270	324	45	12,056
Jackson	2	724	161	0	376	0	219	521	4,028	1,440	36	28,960
Juneau	0	1,026	17	0	597	0	490	937	4,437	2,323	11	30,293
Marathon	0	1,743	335	0	2,954	10	3,020	969	1,347	431	15	40,471
Marquette	0	386	0	0	538	0	179	607	1,686	1,282	0	8,464
Monroe	0	194	3	0	246	0	278	322	1,041	361	1	14,875
Portage	0	315	45	0	428	0	461	369	1,584	1,621	12	19,925
Waupaca	0	126	39	0	305	14	214	311	807	244	20	13,724
Waushara	0	51	1	0	79	0	111	129	301	71	1	13,363
Wood	0	1,316	130	0	928	0	475	501	3,928	1,577	8	37,069
Total	5	12,225	2,110	0	10,713	24	9,183	8,318	33,514	15,349	232	334,585
SOUTHWESTERN												
Buffalo	0	0	0	0	0	0	0	0	0	0	0	1,300
Crawford	0	71	0	16	164	0	83	105	618	234	21	1,666
Dunn	0	9	3	0	101	0	86	12	2	0	3	11,378
Grant	0	70	0	14	161	0	84	96	637	240	21	1,693
Iowa	0	0	0	0	0	0	0	0	0	0	0	42
Lacrosse	0	0	0	0	0	0	0	0	0	0	0	954
Pepin	0	125	0	0	16	0	11	8	9	3	2	2,153
Pierce	0	1	0	0	9	0	7	2	0	0	0	403
Richland	0	0	0	0	0	0	0	0	0	0	0	9
St. Croix	0	0	0	0	0	0	0	0	0	0	0	94
Sauk	0	57	0	0	89	0	133	148	80	27	0	5,226
Trempealeau	0	3	0	0	6	0	3	3	0	0	1	2,467
Vernon	0	1	0	0	2	0	1	1	0	0	0	103
Total	0	337	3	30	548	0	408	375	1,346	504	48	27,488
SOUTHEASTERN												
Brown	0	5	0	0	0	0	0	6	0	0	0	1,100
Columbia	9	381	3	0	194	0	256	144	372	214	35	6,408
Dane	0	0	0	0	0	0	0	0	0	0	0	69
Door	0	0	0	0	0	0	0	0	0	0	0	20
Green	0	0	0	0	0	0	0	0	0	0	0	295
Green Lake	7	7	2	0	53	0	27	17	0	0	17	845
Outagamie	0	0	0	0	0	0	0	16	0	0	0	1,658
Waukesha	0	3	0	0	5	0	7	8	4	2	0	1,173
Winnebago	0	0	0	0	0	0	0	0	0	0	0	22
Total	16	396	5	0	252	0	290	191	376	216	52	11,590
State total	57	162,060	23,412	30	100,168	636	152,820	56,416	60,739	19,781	4,539	2,073,164

[1/] Includes only those counties that supplied pulpwood in 1980.

Table 10.--Central States pulpwood production by State and destination, 1976-1980.

(In thousand standard cords, unpeeled)

Year	Illinois			Indiana			Iowa			Missouri		
	Total	Destination		Total	Destination		Total	Destination		Total	Destination	
		Central States	Other States		Central States	Other States		Central States	Other States		Central States	Other States
1976	116	65	51	172	78	94	45	41	4	132	55	77
1977	111	53	58	161	66	95	50	46	4	123	44	79
1978	100	49	51	190	81	109	42	40	2	99	42	57
1979	102	52	50	204	89	115	69	56	13	101	42	59
1980	102	45	57	178	69	109	44	39	5	105	38	67

Table 11.--Trends in receipts of roundwood and residue as pulpwood, Central States, 1976-1980

(In thousand standard cords, unpeeled)

Type of material and Area	1976	1977	1978	1979	1980
ROUNDWOOD					
Illinois	18	24	30	33	19
Indiana, Iowa, Missouri	81	62	70	96	75
Total	99	86	100	129	94
RESIDUE					
Illinois	71	62	54	59	28
Indiana, Iowa, Missouri	102	98	95	107	99
Total	173	160	149	166	127
All material	272	246	249	295	221

Blyth, James E.; Smith, W. Brad
Pulpwood production in the North Central Region, by County, 1980. Resour. Bull. NC-59, St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station; 1982. 21 p.

Discusses 1980 production and receipts and recent production for other years in the Lake and Central States. Shows Michigan, Minnesota, and Wisconsin production by species for each county and compares production by Forest Inventory Unit with that of previous years. Presents 1980 production and receipt data for Illinois, Indiana, Iowa, and Missouri, and shows four production classes by county.

KEY WORDS: Roundwood, residue, receipts, Lake States, Central States.

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